Attorneys Joaquin Gamboa and Marc Lindsey say cloud computing requires new tactics to get the right license at the right price.

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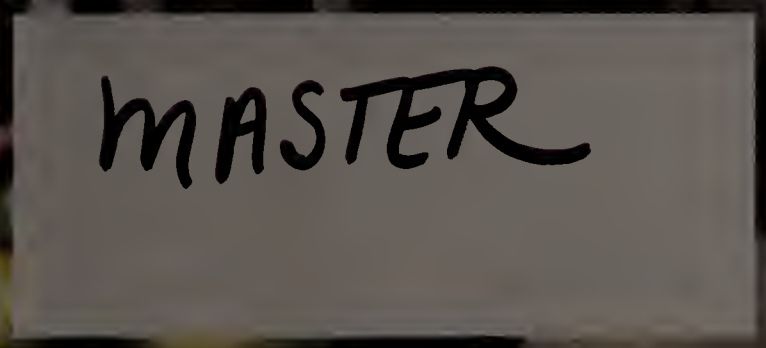

Inside

SEPTEMBER 8, 2008
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News Analysis

The new Chrome browser is the latest weapon in Google's plan to replace Windows with the Web.

The feds may finally be getting serious about enforcing HIPAA's privacy and security rules.

H-1B critic Norman Matloff spells out what's wrong with the visa program and why it's tough to be 40 in IT.

Opinion

Impeach e-voting: We can't trust systems that lack paper-based backups.

Careers

IT workers who lie low when faced with possible layoffs are reacting in exactly the wrong way.

The down economy doesn't mean tough times for some high-profile CIOs.

■ EDITOR'S NOTE

Scot Finnie

The Next Wave

YOU HAVE TO WONDER whether Tim Berners-Lee, inventor of HTTP and the Web browser, had a sense of where it all would lead. All these years later, does anyone know? The Web is the invention that keeps on giving.

The conception of the Web browser was brilliant, but the browser was a relatively simple piece of software. All the more remarkable, then, that it's been at the heart of a series of transforming trends in computing.

Apparently, that transformation isn't over. For more than 10 years, experts have predicted the end of the dominance of operating systems, with the rise of the Internet as the primary application platform. But the pundits were early to that party; we have never been close to the end of the dominance of Windows and other desktop operating systems. For the moment, Microsoft's mantra, "Control the platform at the operating system," continues to be a safe strategy.

But if ever there was a beginning of the end, that moment arrived last Tuesday when Google released the first beta of its Chrome Web browser. The new product is being designed from the ground up as a next-generation client platform for enterprise applications — the potential client engine for software-as-a-service products, cloud computing and Web 2.0 for the enterprise. (See the story on page 9, Frankly Speaking on page 44, and more news, reviews and analysis on the Web at *www.computerworld.com/chrome*.)

Google claims that as a multiplatform, multiple-instance browser with a powerful JavaScript compiler, Chrome will be more reliable and use memory more efficiently than other browsers. The company promises that its browser will be able to juggle multiple applications, block a single bad app from bringing down the stack and zip through JavaScript instructions. It should also make quick work of AJAX and other Web 2.0-enabling technologies. Many of those claims echo Microsoft's descriptions of Windows 3.1, 95 and 98. Chrome is being designed to run Web apps the way a robust operating system does.

■ The beginning of the end of the dominance of the desktop OS may have arrived with Google's release of the Chrome beta.

That may sound laughable right now. As intriguing as Google Docs is, for example, it offers little real competition to Microsoft Office in the enterprise. But current Web apps are little more than placeholders for what's yet to come from third-party software providers. The power and functional reach of Web apps takes on a whole new significance when underpinned by a robust browser-based app platform. Chrome's release is like a starting flag that tells software makers: "Let the development begin."

That's why Chrome is more than just a shot across the bows of enterprise platform and application providers. It's the first shot fired in a war about to be waged over platform dominance. At the same time, it's welcome support for the Web-based direction enterprise apps are taking. As such, it will have complex, profound and unpredictable effects on enterprise IT.

So far, Google has done little more than take the initiative to show the world the kind of browser that's needed. Chrome is robust enough to support the browser-as-platform notion. So, does Google want to own the platform, or is it trying to goad browser makers into delivering reliable, robust products that can spur application development?

Many observers believe Google is after the whole enchilada, but I'm not so sure. If I were planning to own the platform, I'd ship Chrome with a killer app, make deals with OEM PC makers and try to deliver a finished environment. I'd be able to showcase my partners' enterprise applications taking full advantage of the new platform.

Perhaps Google is mindful that the huge market share for Internet Explorer places the ball firmly in Microsoft's court. How will Microsoft react? Internet Explorer 8 as currently offered in Beta 2 is no match for Chrome's underlying structure. IE8, like most other browsers, is primarily an application and only secondarily a platform for Web applications.

So there's a lot yet to unfold. But Google Chrome is a clear marker of things to come. How the IT vendor and user communities react may be more important than the product itself. ■

Scot Finnie *is* Computerworld*'s editor in chief. Tell him what you think at scot_finnie@computerworld.com.*

■ ONLINE CHATTER

RESPONSES TO:

Vista May Still Have Its Day – Just Like XP (Eventually) Did

Aug. 25, 2008

I've been in IT since 1976; you name the crunch, and I've got the scars.

I've been through this again and again with Microsoft: Release a half-baked piece of alpha software because you have a marketing need. And because you were slipping delivery, take out all the interesting, real innovations, since they're hard to get right. Then make customers suffer through a couple of years of beta testing to finally get it to a usable form — by which time you're ready to foist another piece of ill-conceived and poorly implemented and tested junk on them.

Microsoft will get this right, eventually. If there's one thing they do well, it's beat a dead horse until it finally really DOES come to life.

Of course we didn't want XP. At the time it was released, there was nothing in it for anyone who'd already moved to Windows 2000, except "protections" for Microsoft in its "Genuine Advantage" program. The fact that it eventually did become the most stable and usable of the MS desktop operating systems is testament to their lock on the market and the unending flood of patches, hotfixes and service packs.

■ **Submitted by:** *Dave Ihnat*

Pretty much every version of Windows has been slower than the previous. When software has more features, it is going to need more resources. Pretty simple. That's why you generally should run Windows only on hardware suitable for the version you're running.

How is a computer with Vista less functional than a computer with XP? I use XP at work and Vista at home and I get far more done on my home PC because everything is a bit easier. My apps open more quickly due to SuperFetch, and I can find files more easily due to the UI tweaks and the search function.

Vista is great. It performs brilliantly on my midrange PCs.

■ **Submitted by:** *Anonymous*

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Google's Chrome browser

The First True Web 2.0 Browser

REVIEW: Google's Chrome uses simplicity and some clever new features to bring Web surfing into the 21st century.

Apricorn's 160GB Aegis Mini Hard Drive

REVIEW: Apricorn's diminutive external drive lets you carry 160GB in a shirt pocket, with no need for a power brick. But its small size is matched by a large price.

When LinkedIn Knows Where You Are

A convergence of social networking and mobility is under way worldwide among teenagers and young adults. Soon, the phenomenon will spread to corporate users for business purposes, says columnist Mike Elgan.

Video Games Are Poised to Boost Corporate Training

Games can help companies cut costs, meet the needs of younger workers and fulfill "green IT" requirements, according to a new report from Forrester Research.

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News Digest

THE WEEK AHEAD

MONDAY: Microsoft launches its Hyper-V hypervisor and other virtualization products at an event in Bellevue, Wash.

MONDAY: SAP's TechEd 2008 (Las Vegas) and *Computerworld*'s Business Intelligence Perspectives (Phoenix) open.

TUESDAY: Microsoft plans to issue four critical security fixes.

TUESDAY: The International Association of Outsourcing Professionals holds a forum in Chicago on managing deals.

DISASTER RECOVERY

Gustav Finds IT Execs Prepared for the Worst

HURRICANE GUSTAV didn't hit the Gulf Coast as hard as had been feared last week. But some IT managers in New Orleans said they were ready for whatever the storm brought, having upgraded their disaster recovery capabilities since Katrina and Rita devastated the region three years ago.

For instance, since 2005, Loyola University has added an intermediate disaster-recovery site at an out-of-state location to help maintain communications and keep a simplified version of the school's Web site up and running in emergencies.

The intermediate site adds a third level of backup capabilities, complementing generators in Loyola's data center and hot-site services provided for the university's critical systems by SunGard Availability Services.

"We had a very full-fledged disaster recovery plan prior to Katrina," said Bret Jacobs, Loyola's executive director of IT. But, he added, the damage wrought by that storm showed school officials that even more preparations were needed.

"We want to have our reactions institutionalized because you never know what a storm will do," Jacobs said.

« Gustav did cause some flooding in New Orleans last week.

Digimation Inc., a developer of 3-D digital animation software in St. Rose, La., about 10 miles west of New Orleans, was knocked out of business for a week after Katrina struck. Its power and Web site weren't restored for two weeks.

Now, said Digimation President David Avgikos, all of the company's 50 or so PCs and servers are backed up to a main server, which in turn is backed up to a 1TB USB-connected drive that goes out the door with the last employee during an emergency evacuation.

And the company's Web site has been farmed out to a remote hosting provider far from New Orleans.

Tidewater Inc., which supports oil and gas exploration and production companies, has set up a "totally redundant IT system in Dallas," said Joe Bennett, executive vice president and chief investor relations officer. "We can just flip a switch."

Tidewater has also done a lot of disaster recovery training since 2005, and it held daily meetings of key personnel as Gustav neared the coast. "Will this be a false alarm? Possibly," Bennett said. "But you have to be prepared for the worst."

— Todd R. Weiss

Microsoft Adds Virtual Vista Options

Microsoft Corp. last week announced several software licensing changes that give IT managers and end users more options for running Windows Vista in desktop virtualization mode.

Effective Jan. 1, Microsoft will expand its Vista Enterprise Centralized Desktop license to support PCs that end users buy themselves with company stipends. Scott Woodgate, director of Windows product management, said the changes to VECD will also enable IT managers to deploy virtual Vista desktops to the PCs used by contract workers.

In addition, employees will now be able to run Vista in virtual machines on their home PCs, either streamed from a server or loaded from a thumb drive.

But Microsoft will continue to require a VECD license for every system, no matter how little the virtualization option is used.

ERIC LAI

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Microsoft

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Windows Server 2008

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SECURITY

Schwarzenegger Gets Softened Version of Vetoed Breach Bill

CALIFORNIA'S STATE legislature has sent Gov. Arnold Schwarzenegger an amended version of a closely watched data breach bill that he vetoed last October.

The Consumer Data Protection Act, or AB 1656, would require retailers and other businesses operating in the state to take specific steps to prevent credit and debit card data from being compromised. For instance, it would prohibit the storage of PINs, magnetic-stripe data and other information, even in encrypted form.

Retailers would also have to disclose more details about breaches to affected consumers. But a provision that would have required them to reimburse financial institutions for the cost of replacing compromised cards has been dropped. Another change would let retailers retain data needed to process recurring payments.

Melissa Ameluxen, a lobbyist for the California Credit Union League, said the CCUL hopes the removal of the reimbursement clause will go a long way toward ensuring that Schwarzenegger signs the bill this time around.

"The governor's office gave us an indication that removing that part of the bill would help us move closer" to getting it signed into law, Ameluxen said. The trade group is one of AB 1656's chief proponents.

PHOTO BY LAURA EMBRY/THE SAN DIEGO UNION-TRIBUNE/ZUMA PRESS

Schwarzenegger felt the original bill conflicted with private-sector data security standards.

The California State Assembly approved the amended bill by a 74-1 margin on Aug. 31, after the state Senate had passed the measure on a 34-3 vote four days earlier.

A law enacted in Minnesota in May 2007 requires retailers that store prohibited data to reimburse banks and credit unions for card replacement costs after breaches occur.

But the California bill is the one that retail and banking trade groups have really been keeping an eye on. If Schwarzenegger signs AB 1656, many analysts expect other states will use it as a model for similar statutes.

That would be unfortunate, according to Gartner Inc. analyst Avivah Litan. "Governments should stay out of the security business," she said. "They clearly have a role to play in [regulating] breach disclosure. But it's totally inappropriate for a state to mandate security controls."

— Jaikumar Vijayan

Short Takes

In an affidavit filed in federal court, former Inc. CEO Sanjay Kumar implicated company founders Charles Wang and Russell Artzt and former board members Alfonse D'Amato and Lewis Ranieri in an accounting fraud scandal at the company. Kumar is serving a prison term on charges related to the scandal.

Oracle Co has agreed to buy Cl arA a maker of software for managing the performance of SOA-based applications, for an undisclosed sum.

Open Text plans to purchase a maker of document management and data capture software, for about $131 million. The deal is set to close by the end of the year.

Red Hat has acquired Qum a for $107 million. Red Hat said Qumranet's embedded Kernel Virtual Machine platform will let its Enterprise Linux software natively support virtualized Windows machines for the first time.

HARDWARE

Atom Chip Stymied By Testing Bottleneck

A TESTING BOTTLENECK is slowing the manufacture of Intel Corp.'s Atom processor, just as computer makers are looking to plug more of the chips into small laptops called netbooks.

The chip maker's chief financial officer, Stacy Smith, first disclosed production problems in July, blaming stronger-than-expected demand for the low-end processor.

Taipei-based Asustek Computer Inc. last month blamed the production woes for its decision to use a much older Intel chip, the 900-MHz Celeron M 353, in two models of its popular Eee PC line.

An Intel spokesman late last month confirmed that the testing constraint was limiting production, but he declined to say when manufacturing will meet demand.

Dean McCarron, president of Mercury Research, noted that testing and assembling raw silicon into finished chips is a labor-intensive process, so it's difficult to increase testing capacity quickly. "[It] can only be done so fast, as one has to buy equipment, install it and set up the appropriate factory lines, etc.," McCarron said.

Also, he noted, Atom processors are cheaper than most other Intel chips, and priority in the testing process goes to more expensive models.

The bottleneck may not end until 2009, when Intel opens a $1 billion test and assembly facility in Vietnam.

– SUMNER LEMON, IDG NEWS SERVICE

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iRobot's PackBot Explorer in action

PHOTO COURTESY OF IRCBOT

ROBOTICS

U.S. Army, iRobot Sign $200M Pact

THE U.S. Army last week awarded a five-year, $200 million contract to iRobot Corp. to supply it with military robots and spare parts along with training and other services.

The pact was signed about four months after the expiration of an earlier Army contract under which iRobot supplied products based on its PackBot robot.

The new contract covers all iRobot technologies.

In a statement, Joe Dyer, president of Bedford, Mass.-based iRobot, said the deal shows that the Army is continuing to find ways to use robotic technology on the battlefield, "allowing troops to complete missions successfully while keeping them at safe distances" from dangerous situations.

In recent months, various military agencies have invested in robotics technology for the battlefield.

In May, the U.S. Army Research Laboratory in Adelphi, Md., awarded a $38 million contract to BAE Systems Inc. to design and build microrobots inspired by birds and insects.

And last month, the U.S. Defense Advanced Research Projects Agency awarded Tufts University in Medford, Mass., $3.3 million in funding to continue its efforts to develop soft robots that can squeeze into spaces a fraction of their normal size.

— Sharon Gaudin

BETWEEN THE LINES *By John Klossner*

Alcatel-Lucent tapped Ben Verwaayen, a Dutch national who was CEO of BT Group PLC until June 1, to be its CEO, and it named Philippe Camus, a French native who lives in the U.S., chairman. The positions had been open since July 29.

Google Inc. added a YouTube-like video-sharing tool to Google Apps Premier Edition, its fee-based suite of online applications.

10 YEARS AGO: Google was incorporated by University graduate students Larry Page and Sergey Brin after they raised $1 million in start-up funds.

Global Dispatches

U.K. Airport Tests Facial Recognition

MANCHESTER, England – The Manchester Airport last month started testing a facial recognition system that was installed as part of the £1.2 billion ($2.1 billion U.S.) U.K. e-Borders program, which is designed to better control entry into the country.

The new system is based on technology from Vision-Box Co. in Lisbon and was installed by Fujitsu Services in London. Officials expect it to tighten border security and speed up immigration processing times.

The system will compare the faces of U.K. and European Union travelers to their biometric passports. It will also enable people with electronic passports to move through immigration on a fast track with no prior registration.

A U.K. mandate requires that everyone traveling into and out of the country be checked against immigration and security watch lists by 2014.

Computerworld U.K. staff

Sony Recalls 438,000 Laptops

TOKYO – Sony Corp. last week recalled 438,000 Vaio TZ laptops because of a possible manufacturing defect that may cause them to overheat.

The U.S. Consumer Product Safety Commission said some of the computers have been found to have a problem with wiring near the hinge that could lead to short-circuiting and overheating.

One person has suffered a minor burn as a result of the defect, and Sony has received 15 other reports of overheating computers, the Product Safety Commission said.

The Vaio recall comes about two years after Sony recalled millions of its laptop batteries because of overheating issues.

Peter Sayer,
IDG News Service

BRIEFLY NOTED

Mphasis Ltd., an outsourcer based in Bangalore, last week announced plans to open a new software development and services facility in Hyderbad, India, that will employ 1,000 people within a year. The company currently has about 28,000 workers.

John Ribiero,
IDG News Service

Google Adds A Weapon in Its Battle to Kill Windows

Chrome browser promises to provide a significant performance boost to online apps.

By Heather Havenstein

LAST WEEK'S unveiling of a new browser is the latest in a series of moves by Google Inc. to rid the world of Microsoft Windows, according to analysts.

In fact, said Matt Rosoff, an analyst at Directions on Microsoft in Kirkland, Wash., the new Chrome browser could be the key component of Google's plan to convince consumers and business users to replace Windows-based software with hosted Web applications.

"This is the potential threat that Microsoft has been worried about since the 1990s," Rosoff said. "This is Google trying to really push applications to the Web and make that the way people do computing."

Google began offering a beta version of the new open-source browser on its Web site last week.

Chrome includes a new high-performance JavaScript engine and Google Gears, which will let users store and access Web applications offline. The browser is powered by the WebKit open-source rendering engine, also used in Apple Inc.'s Safari browser, and includes unspecified Firefox components.

At a press briefing, Sergey Brin, co-founder and technology president at Google, said he expects Chrome to serve as a strong vehicle for running Web applications. "I wouldn't call Chrome the OS of Web apps," Brin said. "It's a very basic, fast engine to run Web apps."

Google likely won't position Chrome simply as a competitor to established browsers from vendors like Microsoft, Mozilla, Apple and Opera Software, noted Ray Valdes, an analyst at Gartner Inc.

"It's about the Web apps battle," Valdes said. "It's about having a platform that will support the next generation of Web apps."

Google spent two years making sure its system could overcome the growing inability of current technologies to run new online applications. It was "definitely a strategic initiative," Valdes said.

Earlier steps in Google's long-term plan to kill Windows include the 2006 launch of the Google Apps hosted applications suite. That offering includes the Google Docs collaboration tool, Gmail e-mail software, Google Calendar, the Talk instant messaging and voice-over-IP application, and the Sites wiki service.

Google is also expected to soon unveil an online storage offering.

Corporate IT managers have so far been unenthusiastic about replacing packaged software with Google's Web-based offerings. Robert Ford, CIO at Virgin Entertainment Group Inc., said Chrome likely won't change that view, at least at Virgin.

Although Chrome is impressive, "there would have to be astronomical performance improvements for us to switch," Ford said.

He noted that IE is the Los Angeles-based retailer's corporate standard, and developers there are expert in Microsoft .Net-based technologies. "I don't see any reason to challenge our IE standard," Ford said. "I'd have to make sure Chrome worked well with all of our other apps. What is the business value in that?"

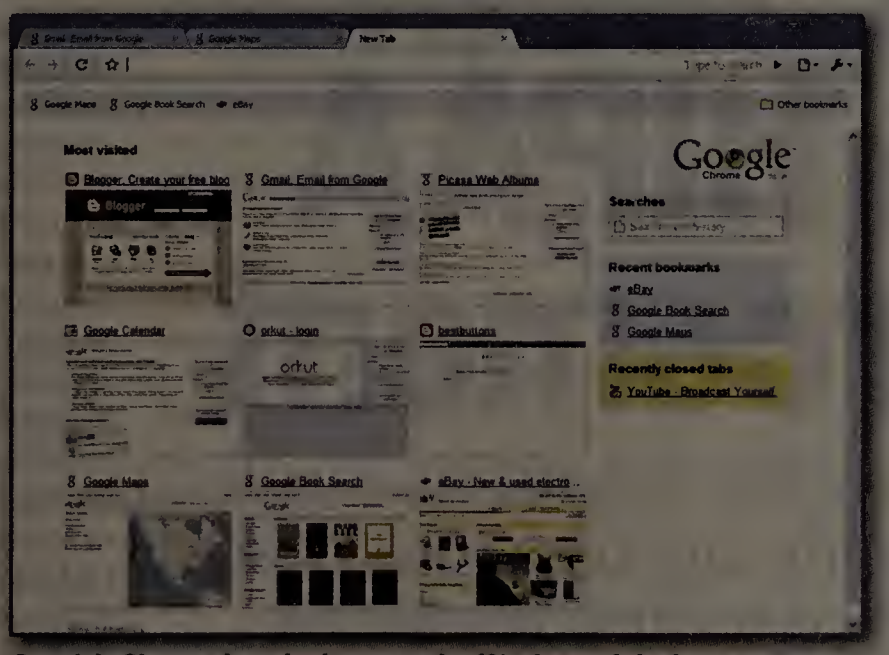
In a statement, Dean Hachamovitch, IE general manager at Microsoft, said the company expects most users to continue turning to Internet Explorer, which holds about 72% of the browser market, according to Net Applications Inc., an Aliso Viejo, Calif.-based Web metrics research firm.

Sheri McLeish, an analyst at Forrester Research Inc., said that Chrome "is not compelling enough to erode Microsoft's dominance. Too many IT shops are comfortable with IE."

McLeish noted that persuading users to switch browsers is a difficult task for any vendor. Even Microsoft has faced challenges getting users to upgrade to new versions of IE, she said.

Rosoff added that Google also faces a significant challenge in finding ways to distribute the new browser.

"Google is a powerful brand, but they do need a way to distribute the browser," he noted. PC makers, an obvious potential distribution path, may be wary of replacing Windows with Web-based applications. ■ **Eric Lai, Gregg Keizer** *and the IDG News Services'* **Juan Carlos Perez** *contributed to this story.*



Google's Chrome beta had garnered a 1% share of the browser market within 24 hours of its release last Tuesday.

ISTOCKPHOTO

Feds Finally Put Teeth Into HIPAA Enforcement

Three years after the federal law's rules on securing health care data took effect, HHS has issued its first 'corrective action plan.' **By Jaikumar Vijayan**

A DATA SECURITY audit that the U.S. Department of Health and Human Services conducted at Piedmont Hospital in Atlanta last year was widely viewed within the health care industry as a harbinger of further actions by the federal government to enforce HIPAA's security and privacy rules.

Eighteen months after HHS quietly began the Piedmont audit, there hasn't been much evidence of stepped-up enforcement. But now a stringent "resolution agreement" signed in July by the agency and Seattle-based Providence Health & Services is generating the same kind of buzz among health care providers that the Piedmont audit did.

On July 15, Providence agreed to adopt a so-called corrective action plan (CAP) and pay $100,000 to settle what HHS described as "potential violations" of the Health Insurance Portability and Accountability Act's requirements for safeguarding electronic patient data.

The resolution agreement — the first of its kind under HIPAA — stemmed from the loss or theft of laptops, optical discs and backup tapes containing the unencrypted medical records of more than 386,000 Providence patients. On several occasions in 2005 and 2006, equipment was reported missing after workers took it out of the office with them.

Under the CAP, Providence has to revamp its security policies to include physical protections for portable devices and for the off-site transport and storage of backup media. It also is required to implement technical safeguards, such as encryption and password protection. And the not-for-profit health system, which has operations in five western states, must conduct random compliance audits and submit compliance reports to HHS for the next three years (see box, next page).

In addition, the agreement calls for Providence's chief information security officer to personally validate that all required policies have been put in place and that all employees have been trained on adhering to them. The CISO also has to attest that all backup media and portable devices containing health information protected by

HIPAA are properly secured.

Significantly, the CAP precludes Providence Health from contesting the validity of or appealing any of its obligations under the agreement. The settlement is getting considerable attention within the health care industry because of the tough terms and conditions that the deal imposed on the provider.

"The CAP gives us some indication that the bar is being raised when it comes to HIPAA compliance," said Lisa Gallagher, director of privacy and security at the Healthcare Information and Management Systems Society (HIMSS) in Chicago. "This is a fairly serious corrective action plan."

Gallagher added that the deal with Providence sends a clear message to other health care providers that HHS is finally cracking down on HIPAA violators, after having been accused of lax enforcement in the past.

The harder line is in keeping with an announcement in January that the Centers for Medicare & Medicaid Services (CMS), the HHS unit responsible for administering the HIPAA security rules, had hired PricewaterhouseCoopers to conduct audits on its behalf. At the time, the CMS said it planned to do 10 to 20 audits this year at organizations that had been the target of complaints about their data security practices.

According to Gallagher, the CMS is expected to release findings from those audits early next year. It also plans to highlight violation trends and provide guidance on the biggest problems that health care providers are having in implementing the controls required by HIPAA. "As far as I know, they are under way with these audits," she said.

Gallagher also expects the CMS to start working more closely on enforcement with the HHS Office of Civil Rights, which administers the data privacy rules set by HIPAA.

As of press time, the CMS had yet to respond to questions that were sent via e-mail, as an agency spokesman had requested. Providence officials also asked that questions be sent via e-mail but also hadn't responded.

Peter MacKoul, president of HIPAA Solutions LC, a consulting firm in Sugar Land, Texas, agreed with Gallagher that the Providence settlement was a dramatic example of the potential consequences of HIPAA violations.

"If you look at what they're being forced to do, it's scary," he said. "They have lost their ability to contest anything; there's no way of getting out of this agreement. And this is the best deal they could get."

MacKoul added that while Providence was audited for data security violations, many of the corrective actions it is being required to implement fall into the privacy realm, showing that HHS is making little distinction between privacy and security for compliance purposes.

Mandated Steps

The security action items that Providence Health & Services agreed to include the following:

- Revise policies and procedures for safeguarding patient data while it is stored at or being transported to offsite facilities.
- Train all workers on security policies and submit proof to HHS that the training has been completed.
- Update policies as needed, but at least on an annual basis.
- Ensure that a security risk assessment and management plan and a data breach notification policy are in place.
- Conduct reviews that include unannounced audits, spot checks and site visits at company facilities.

And based on the terms of the CAP, organizations that have to comply with HIPAA shouldn't be lulled into complacency by the previous lack of enforcement, MacKoul warned. "If I were a covered entity, I wouldn't want to roll the dice and get caught up in something like this," he noted.

The resolution agreement does appear to be a belated attempt by HHS to get the health care industry to take HIPAA more seriously, said Chris Apgar, president of consulting firm Apgar & Associates LLC in Portland, Ore. "I think it's about time they used somebody as an example," he said.

Even so, it's unrealistic to expect a large increase in the number of HIPAA enforcement actions in the near term, according to Apgar and other analysts. Such actions are triggered only when complaints are lodged against organizations. HHS has no HIPAA cops who are actively looking for violations, and health care providers aren't required to report internal violations themselves.

Also, neither the CMS nor the HHS Office of Civil Rights has anywhere near the resources or the funding needed to investigate all of the complaints that are filed. As a result, examples such as the settlement deal with Providence will likely continue to be more the exception than the rule, Apgar said.

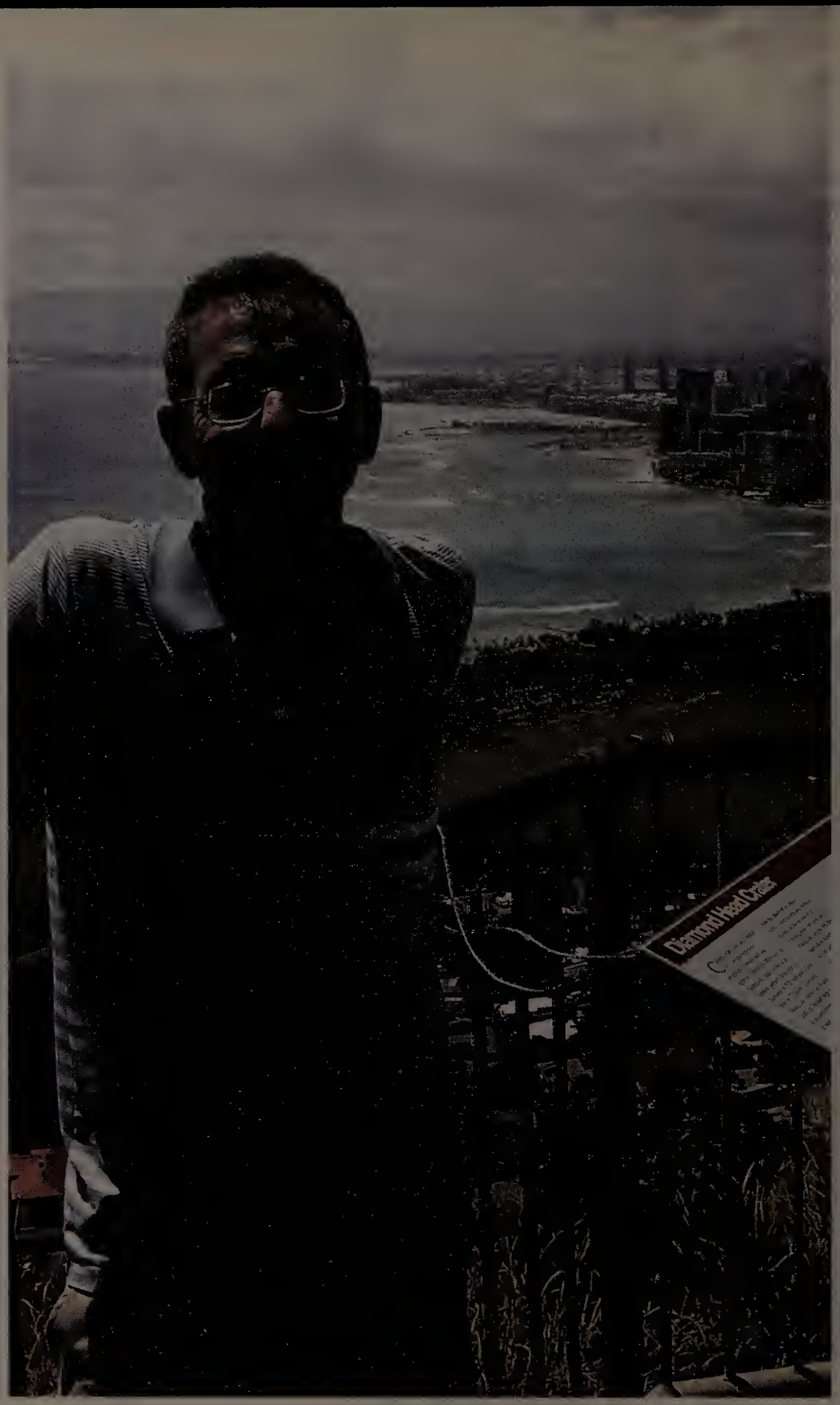
In fact, one of the primary reasons why Providence was investigated in the first place no doubt was the publicity generated by the incidents involving lost IT equipment, said Randy Yates, director of security at Memorial Hermann Healthcare System in Houston.

"Once something that large hits the media, the government is bound to do something," Yates said. "[The CAP] puts out a message that says, 'We see this thing, and we don't like it.' "

Often, enforcement actions are important because they get the attention not just of those in charge of implementing privacy and security policies, but also of those who control the purse strings within organizations. Last year, for instance, the audit at Piedmont Hospital contributed to the approval of a $1.3 million budget item for data encryption at Memorial Hermann.

But if the investigations are as sporadic as they have been in the past, the buzz generated will fade away quickly, said Christopher Paidhrin, IT security officer at ACS Healthcare Solutions, a Dearborn, Mich.-based unit of Affiliated Computer Services Inc.

Paidhrin noted that the Piedmont audit last year initially raised a considerable amount of concern among health care providers. But most of that concern eventually melted away when the expected increase in enforcement actions failed to materialize. The same thing will likely happen in the aftermath of the Providence Health settlement, he said — unless HHS takes additional actions elsewhere and publicizes them to the same extent. ■



THE GRILL

Norman Matloff

The longtime **H-1B nemesis** talks about **what's wrong** with the program, why it's **tough to be 40 in IT,** and what he tells **computer science students.**

Dossier

NAME: Norman Matloff

TITLE: Professor of computer science

ORGANIZATION: University of California, Davis

FAVORITE BOOK: "Any kind of biography. One memorable book: *Serious: The Autobiography*, by John McEnroe."

PET PEEVE (TECHNOLOGY EDITION): "Everybody ought to use Linux." (Windows gets in his way.)

PET PEEVE (PEOPLE EDITION): "People who aren't thinking. They follow like sheep."

When Norman Matloff warned Congress about the H-1B visa program in 1998, he was one of the first to do so. His testimony, titled, "Debunking the Myth of a Desperate Software Labor Shortage," *helped frame the national debate over the H-1B visa. He remains the leading critic of the program, which has heavy support in Congress.*

How did you get involved in the H-1B debate? Even in 1998, there were severe problems that were masked by all the hoopla about the dot-com boom. There were a number of people who just weren't able to get work, and these were generally people who were over 40, many well qualified in the classical sense — years of significant experience. It was clear that what the industry wanted was cheap labor. One of the ways to get cheap labor is to hire young, and if you run out of young people to hire that are U.S. citizens and permanent residents, you turn to hiring young foreign people. Almost all the H-1Bs are young.

What drew your attention to the situation? I'm very deeply immersed in the Chinese immigrant community [Matloff speaks Mandarin, and his wife is an immigrant from Hong Kong] and saw a lot of people that were hired on H-1 visas [the predecessor of the H-1B program] who were not really good. So I had suspicions.

Continued on page 14

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In many cases, the parents in Silicon Valley are encouraging their kids not to go into the [IT] field because they know what's going on.

Continued from page 12

Don't your connections with the immigrant community put pressure on you to favor more relaxed policies on immigration? People who are immigrants are harmed by H-1Bs just like the natives are, even the ones who are originally H-1Bs. The minute they get a green card, they are somewhat less employable, and when they hit age 35 and 40, they are a lot less employable, just like the natives are.

I will assume you have some foreign students in your computer science classes. At the undergraduate level, the number of foreign students is small. The graduate level is different. This was all planned for by the National Science Foundation. Their concern was that Ph.D. salaries were too high, and they said that they were going to remedy it by bringing in a lot of foreign students. Swelling the labor pool will reduce the salaries or reduce the growth in salaries, and that was at the same time NSF was pushing Congress to enact the H-1B program. NSF also said at the time that by limiting salaries, Americans would be dissuaded from pursing graduate degrees and, of course, that's exactly what happened. So now you see only 50% of the Ph.D.s in computer science go to Americans.

How do you reconcile your views with your own personal interactions with foreign students completing graduate programs at your university? I don't think there is anything to reconcile, for two reasons. Why should I blame them for wanting to do this? It's attractive to them. Our national policy has made it available to them. There is no reason to hold it against them. The second reason is, I have always been strongly in favor of rolling out the immigration red carpet for people who are the so-called best and the brightest — although I definitely do not say that anybody who has a Ph.D. is the best and the brightest. And for the ones who are, I've gone out of my way to help them get jobs in Silicon Valley and elsewhere.

But how do you sort it out? How do you determine who are the best and the brightest? A lot of people are not aware of this, but there is already a policy. For temporary visas, there is the visa named O-1 [for aliens of extraordinary ability and achievement], and for green cards you have the three levels [with EB-1 designated for those demonstrating the most talent in a particular area].

What would the H-1B program look like in your model? It would be a lot smaller, way smaller — and the criteria for qualifying would look similar to the EB-1.

The presidential candidates all seem to support the H-1B program. And Congress would have increased the cap last year, had it reached an agreement on immigration reform. It seems as if you are fighting a losing battle. How would you define success at this point? There are degrees of success. A glass-is-half-full point of view would be, "Gee, we've held them off this long [from a cap increase]; that's pretty good." It's a success of a sort. On the other extreme, you restore H-1B to the original intention of just bringing in the best and the brightest. But what would be a realistic goal? A realistic goal is part of the Durbin-Grassley Act [the U.S. Senate's H-1B and L-1 Visa Fraud and Abuse Prevention Act, sponsored by Sens. Dick Durbin (D-Ill.) and Chuck Grassley (R-Iowa)]. By far the most important part of the bill is to redefine *prevailing wage*. Currently, the employers by statute are required to pay prevailing wage, but the definition of *prevailing wage* is full of loopholes. The Dubin/Grassley bill would fix that by setting a definition of *prevailing wage* that really would make it the market wage.

The second most important aspect of the bill is it would take the current restrictions on H-1B-dependent employers [those that have a significant number of H-1B workers on staff] and make them applicable to all H-1B employers.

There are several restrictions on H-1B-dependent employers. The one that would be the most important would be an anti-layoff provision. H-1B-dependent companies are not allowed to hire any H-1B workers within 90 days of a layoff, either prior or afterward. That restriction under the Grassley/Durbin bill would apply to all H-1B employers, and that would be something that would be really worth having. Employers would also be required to try to hire Americans first. The impact would be giant. They wouldn't be able hire H-1Bs as cheap labor.

You have written that computer science departments must be honest with students regarding career opportunities in the field. What do you tell students today? I am chair of our undergraduate curriculum committee, and every year I give a presentation to high school seniors and their parents. I tell them that things are fairly good for new graduates right now, [though] they aren't nearly as good as they were in the late 1990s. But once you are out 10 years or so, then you've got to be nimble. It's much harder to find work after you have been in the field for 10 years or so. A lot of the parents themselves are engineers. In many cases, the parents in Silicon Valley are encouraging their kids not to go into the field because they know what's going on.

— *Interview by* **Patrick Thibodeau**

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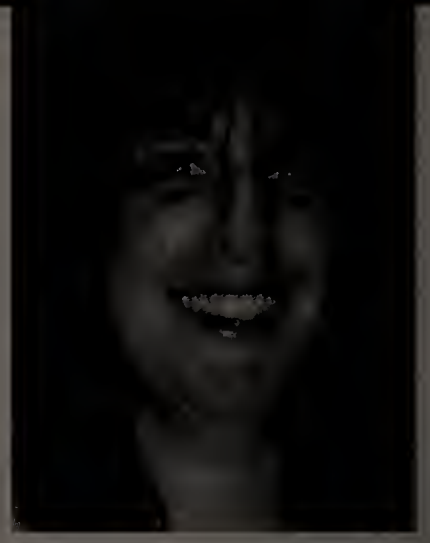
■ OPINION

Sharon Machlis

Let's Impeach E-voting



WERE SOFTWARE PATCHES that didn't fix problems but instead changed results applied to electronic voting machines in two Georgia counties? Were the patches applied at the instruction of a top Diebold executive, without informing local election officials?

This charge has been leveled several times since a rather surprising election in which two Democratic candidates had comfortable leads in polls just before Election Day yet lost by substantial margins.

Of course, there's a strong correlation between your degree of suspicion of those results and which party you support. But we should *all* be frightened if there's no way to prove that tampering *didn't* occur. And when voting machines are electronic, paperless and proprietary, it's all but impossible to do a recount or check for errors in a way that can uncover a malicious hack (or honest mistake). Tech professionals across the political spectrum should be unhappy with that kind of system.

Election consultant Chris Hood told *Rolling Stone* magazine that he was working for Diebold in Georgia in 2002 when the head of the company's election division arrived to distribute a patch to workers. That code was applied to only about 5,000 machines in two counties. Hood says it was an unauthorized patch that was kept hidden from state officials. (Diebold says the state approved the update, although state officials have since asked for more information on the patch's effect.)

The Georgia allegations are disturbing but, sadly, not unique. An attorney and IT security consultant last month cited that incident to renew challenges to 2004 Ohio elections, which had a similar mix of paperless Diebold machines and statistically curious results.

In Alabama, questions linger about a supposed "glitch" that caused officials to change the winner of the governor's race six years ago; a research paper presented to the Alabama Political Science Association later described the new, changed results as statistically "anomalous" and outlined a possible scenario of vote-counting fraud.

■ There's a simple answer to all of this: paper ballots that are scanned and counted by machines.

Paper isn't perfect, as Florida's "hanging chad" fiasco of 2000 painfully demonstrated. And paper systems aren't necessarily 100% secure; it's certainly possible to destroy or alter paper ballots locally. But unprecedented statewide and even nationwide tampering with elections is theoretically possible when a company controls the counting devices without the independent verification that paper receipts provide.

Without paper ballots, there's no way for candidates — or voters — to contest a suspicious result, since each person's action must remain anonymous.

There's a simple answer to all of this: paper ballots that are scanned and counted by machines. Automated ballot counting is much quicker than manual counting, but retallying by hand is still possible should the results be doubted. These systems have the added benefit of being able to easily process large numbers of voters when turnout is unusually high, preventing hours-long waits at polls due to a lack of functioning machines. It's a lot easier to ramp up for an unexpected crowd if all you have to do is hand out more paper ballots.

If election officials insist on an electronic system, they should require a paper printout that voters can verify and deposit in a secure storage area. Those paper ballots can then be counted by hand if need be, and electronic results can be confirmed.

Those of us who vote on paperless machines, whether with touch screens or levers, can never be confident that our votes will be properly submitted, registered and counted. That leaves our elections under perpetual suspicion, whichever candidates prevail.

It's time to outlaw any voting machine that doesn't offer the possibility of a paper-based recount. ■

Sharon Machlis *is the managing editor of* Computerworld.com. *You can reach her at sharon_machlis@computerworld.com.*

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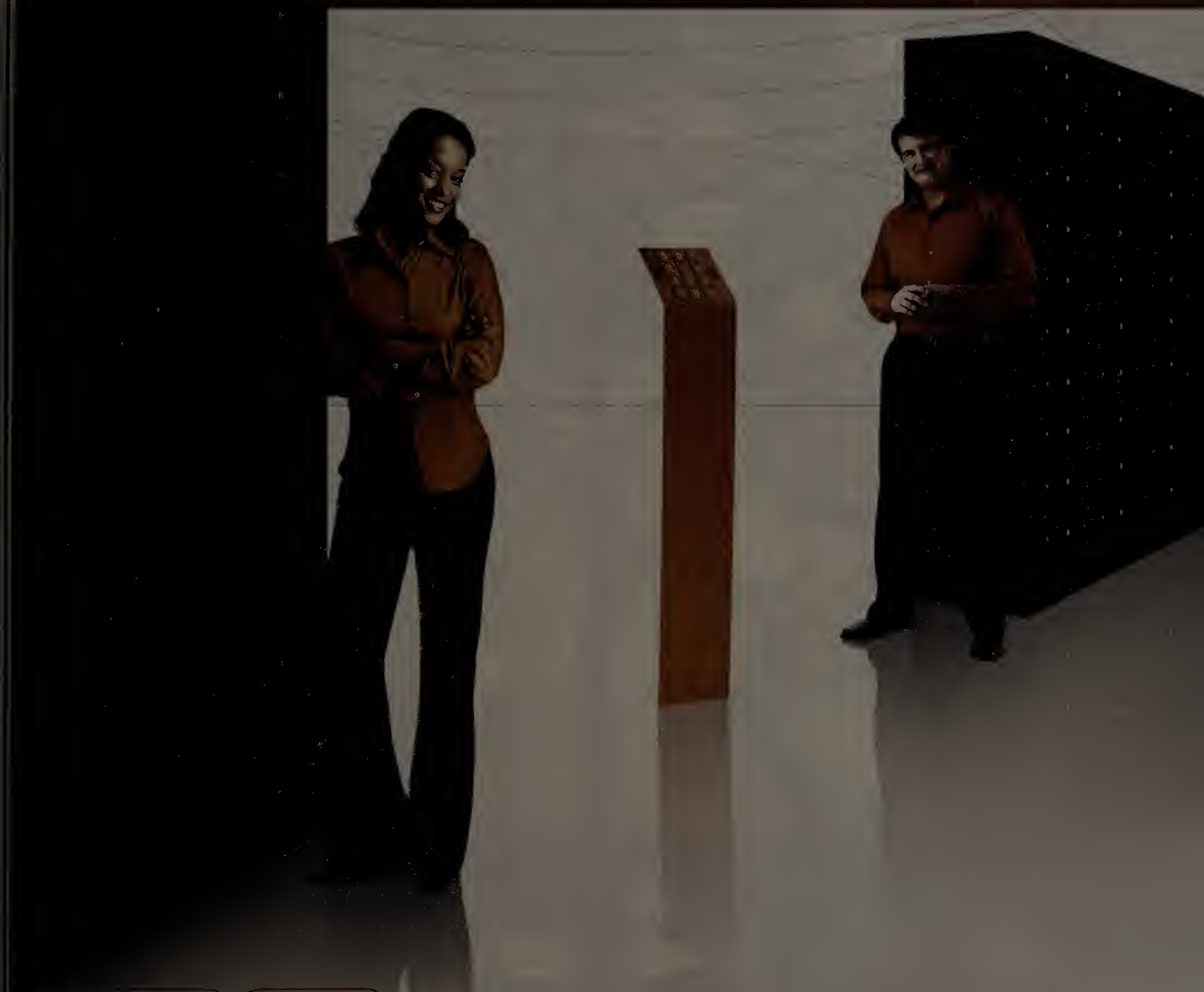

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gathering

LOW-HANGING FRUIT FOR TODAY AND STRETCH GOALS FOR TOMORROW, TO SAVE YOU GREEN BY GOING GREEN.

By Mary K. Pratt

CHIEF Technology Officer Arvind Thapar wants to bring new green technology to his company, but his proposed initiative — installing wind turbines to generate power — is decidedly outside the usual realm of IT.

Thapar is still preparing his formal pitch to First National of Nebraska, the Omaha-based financial services firm where he works, but he says initial reaction to the idea has been positive — something he wouldn't have expected five years ago.

His experience clearly shows the shifting winds of our times.

Leading businesses are looking for ways to get green. Some are motivated by concern for the planet; others by the cost savings or the marketing advantages that can come from more environmentally friendly policies. Often, they're driven by a combination of factors. In any event, IT has a key role to play.

Here's a checklist of suggestions from *Computerworld*'s Top Green IT 2008 winners, to get you started and keep you moving in a greener direction.

Low-Hanging Green Fruit

1 Limit paper use.
The paperless office is still a dream. Each year, the U.S. goes through 4 million tons of copy paper, 2 billion books, 350 million magazines and 25 billion newspapers. This can lead to deforestation, and the paper manufacturing process produces carbon dioxide.

But IT can take simple steps to cut corporate paper use.

London-based BT Group PLC moved printers from desktops to central locations. That forces workers to get up when they want to retrieve printed material — which helps deter excess printing, says Donna Young, BT Group's head of environmental climate change. The IT staff also set printers to automatically use both sides of the paper.

Other World Computing in Woodstock, Ill., controls paper use by sending managers reports of what's been printed so they can spot excess usage and try to curb it, says CEO Larry O'Connor.

2 Buy renewable energy.
This is an easy one: Contact your power company to see if it offers electricity from renewable energy sources (many do), such as wind or solar power, says Austin Energy CIO Andres Carvallo.

There are a few caveats, though. Unless you can persuade the facilities folks to get green energy for the entire company, you might have to limit it to just the data center (where CIOs usually have more control over power supplies). You'll also have to persuade the finance people to shell out a little extra money, at least to start.

Carvallo says green energy usually carries a premium — Austin Energy charges 20% extra for it — although many power companies, including his own, lock in the price for multiple years, which means your green power could soon be cheaper than electricity from conventional sources.

3 Use power management tools.
The nonprofit Climate Savers Computing Initiative estimates that using power management features for desktop computers can save more than 600 kilowatt-hours of electricity and about $60 annually in energy costs per computer. Multiply that by the hundreds — or thousands — of PCs you have in your IT shop, and you can see how this simple action can turn into a lot of green.

To maximize energy savings, the Climate Savers Computing Initiative recommends putting monitors and hard drives to sleep after 15 minutes or less of idleness, with system standby occurring after 30 minutes.

Next Steps

1 Virtualize.
Virtualization can yield significant savings, says Larry Vertal, a member of the board of directors at The Green Grid, a global consortium dedicated to developing and promoting energy efficiency for data centers and information service de-

Continued on page 22

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livery. He says at least one Green Grid member saw energy savings of 70%.

Norm Fjeldheim, senior vice president and CIO at Qualcomm Inc. in San Diego, embarked on virtualization of his data center in 2003, giving his team just $250,000 to fund the project.

At the time, the company had about 450 servers. Five years later, with virtualization in the data center about 70% complete, the company has 420 servers running more applications and serving more workers.

Fjeldheim estimates that virtualization has saved about $15 million in avoided capital costs and about $4 million to $5 million in power costs because of decreased energy demands.

Although virtualization has clear green benefits, it's challenging to implement. "There is a skill set barrier and a cultural barrier to entry," says Daniel Blanchard, vice president of enterprise operations at Marriott International Inc. "Many [business] people want their own system, and they don't want to share with anybody else." Marriott's IT shop has implemented virtualization projects in part because of the green benefits, he says.

2 Facilitate telecommuting. Technology can eliminate a lot of daily commuting and travel requirements. But IT must provide the right tools, from at-home networking capabilities to audioconferencing and online collaboration systems.

At BT Group, those tools allow about 10% of employees to work full time from home and 70% to have flexible work arrangements, Young says. The company also has invested in technologies for virtual meetings and collaboration, reducing the need for employees to travel between sites.

Young says these initiatives have prevented the production of 97,600 tons of carbon dioxide that commuting and traveling would have generated. (Company studies have also shown that the initiatives increased productivity by 21% and reduced sick time by 63%.)

3 Include green objectives in procurement policies. IT procurement policies have long specified product performance standards. It's now time to add environmental standards to that list.

Fjeldheim tweaked his shop's evaluation criteria several years ago, expanding financial considerations from purchase price to total cost of ownership. That means looking at a device's total life cycle, power consumption, recycling costs and other environmental factors. "That was a little bit of a mind shift for us, but when you start to think about it strategically, over the life of the product, it starts to be an easier decision, and it's easier to sell to finance," Fjeldheim explains.

Taking such action is easier now than ever, Carvallo adds, because vendors provide more details about their products' environmental impact and energy requirements, and the federal Energy Star efficiency rating system now applies to computer equipment.

No-brainers

Here are some green initiatives even lower than the low-hanging fruit:

MAKE RECYCLING OBVIOUS. Put bins for paper, plastics, cans, etc., throughout the office so there's no excuse for not recycling.

REWARD WORKERS WHO USE THE SHOE-LEATHER EXPRESS. Austin Energy gives $60 a month to employees who walk, bike or find other nonmotorized transportation to and from the office.

RECYCLE IT EQUIPMENT. Give an employee the responsibility and it will happen.

THINK BEFORE BUYING. Develop rigorous reviews and procurement policies to make sure you buy only what you need.

– MARY K. PRATT

Stretch Goals

1 Get a better grip on data center demands. It's no secret that data center cooling gobbles up energy. According the federal Data Center Energy Efficiency Program, data centers used 61 billion kWh of electricity in 2006 — double the amount used in 2000 and 1.5% of all the electricity consumed in the U.S.

Virtualization can help rein in those figures, but companies can go further by better monitoring and managing cooling requirements.

Working with computer room air conditioning (CRAC) units, Blanchard's team measures temperatures across the data center to match cooling needs with cooling output.

This requires an investment of staff time, but there's a good payoff: Blanchard says he has been able to turn off four of Marriott's two-dozen CRAC units while turning up the temperature on other CRAC units by several degrees. This has cut power consumption by 7%, Blanchard says.

Marriott does this monitoring and adjustment manually, but its long-term goal is to automate the process.

2 Replace inefficient equipment. Marriott actively tracks the life cycle of its assets, so IT workers know when it's costing more to run a particular asset than it would cost to buy and run something new. "Across the board, newer equipment is more efficient than older equipment, so the stretch goal is to replace older equipment with newer pieces," Blanchard says.

Achieving that goal can require some significant upfront investment, however, so you'll need to know just how big your energy savings will be — in dollars, not just kilowatt-hours — if you want to sell this initiative to the finance people.

Make sure you're combining new purchases with other energy-reducing and environmentally friendly initiatives, Blanchard says. For example, don't just replace an old server with a newer model. Though you'll see savings from the exchange, you'll maximize the return on your new equipment if it's part of, say, a virtualization project.

3 Manage assets more aggressively. In a typical data center, no one knows what 10% to 14% of the servers are doing, so keeping better track of your assets and curbing unnecessary use can yield good savings, says Winston Bumpus,

another Green Grid director.

That's what BT Group did. It found that many of its workers had unsanctioned servers under their desks. "It was for a side project, and it made it a little easier for them," Young says. But those rogue servers were eating up energy needlessly because existing, sanctioned servers could have easily handled their workload.

The IT department has cracked down on unnecessary or inefficiently used equipment. For example, a cell phone charger that's plugged in when the phone isn't charging still draws power, as does an empty, unneeded server rack that's still plugged in.

To reach its goals, the company has run three "energy challenges," during which it rewards IT workers with up to $2,000 if they identify equipment that is running but not needed.

Long-Term Targets

1 Build green.

When Monsanto Co. built its new data center at its campus in Creve Coeur, Mo., it wanted to be more than a technology leader; it wanted to be an environmental leader, too. So it earned Leadership in Energy Efficient Design (LEED) certification for the 40,000-square-foot facility.

This provides more than bragging rights. The new data center requires about 30% less energy than a conventionally designed one, says CIO Mark Showers. The design incorporated energy-efficient elements such as natural light and multiple cooling options (including the use of naturally chilled outdoor air when possible). In addition, 10% of the data center's power supply comes from renewable power sources.

Showers says it took time and planning to get to this point. For instance, the company had to consolidate applications over the past decade so all worldwide transactions would flow through the Creve Coeur site. And the decision to pay the extra costs — just under 5% of the $21 million total — for the LEED-level data center wasn't taken lightly.

"But there was a sense that this was the right thing to do. We're an agricultural company, and our business is about sustainable yields and food product, so it fit very cleanly and nicely into our culture," Showers says.

Green Resources

THE DATA CENTER ENERGY PROFILER, or DC Pro, from the U.S. Department of Energy, is an online software tool that helps companies diagnose how energy is being used in their data centers and how they can save energy and money.
www1.eere.energy.gov/industry/saveenergynow/partnering_data_centers.html

THE GREEN GRID is a global consortium dedicated to advancing energy efficiency in data centers and business computing ecosystems.
www.thegreengrid.org/home

THE CLIMATE SAVERS COMPUTING INITIATIVE is a nonprofit group of consumers, businesses and conservation organizations whose goal is to promote the development, deployment and adoption of smart technologies to both improve the efficiency of a computer's power delivery and reduce energy consumption.
www.climatesaverscomputing.org

THE GREEN ELECTRONICS COUNCIL promotes the effective design, manufacture, use and recovery of electronic products.
www.greenelectronicscouncil.org

THE ELECTRONIC PRODUCT ENVIRONMENTAL ASSESSMENT TOOL, or EPEAT, is an environmental procurement tool to help institutional purchasers evaluate, compare and select desktop computers, notebook computers and monitors based on their environmental attributes.
www.greenelectronicscouncil.org/epeat/index.htm

2 Calculate and manage your energy needs.

How efficient is your data center? If you don't know, you're not alone. But Bumpus says companies should strive to find out. "It's an important measurement," he says.

To begin to calculate efficiency, companies need to know how much power is required per transaction, Bumpus explains.

Companies also need to determine how much energy is used while servers are idle, he says, noting that most idle servers tend to consume 60% of the power required for peak workload. Such figures give you a baseline against which to set goals and judge progress.

As organizations get a better handle on data center efficiency and develop best practices and standards for achieving it, they can move to the next step, according to The Green Grid's Vertal and Bumpus.

That entails using tools that dynamically manage the data center, moving workloads around (maybe even to other geographic sites), powering down machines that aren't needed and automatically bringing up machines when they're required.

"As we move to the next five years, data centers have to be more flexible and agile," Vertal says.

3 Adopt new technologies.

Green-thinking companies should press vendors to deliver innovations such as water-cooled server racks for data centers and improvements in virtualization technology. And they should try greener options when available.

Marriott did. Its new Recovery and Development Center will be sited in Iron Mountain Inc.'s 145-acre underground facility in a naturally cooled limestone cave in western Pennsylvania. "We're trying to do as much as we can with the natural resources," Blanchard says.

Blanchard acknowledges that major steps like that require fairly large investments of time and money, as well as a pioneering spirit. But he says companies need to embrace the next generation of technology if they want to build greener operations. ■

Pratt *is a* Computerworld *contributing writer in Waltham, Mass. Contact her at marykpratt@verizon.net.*

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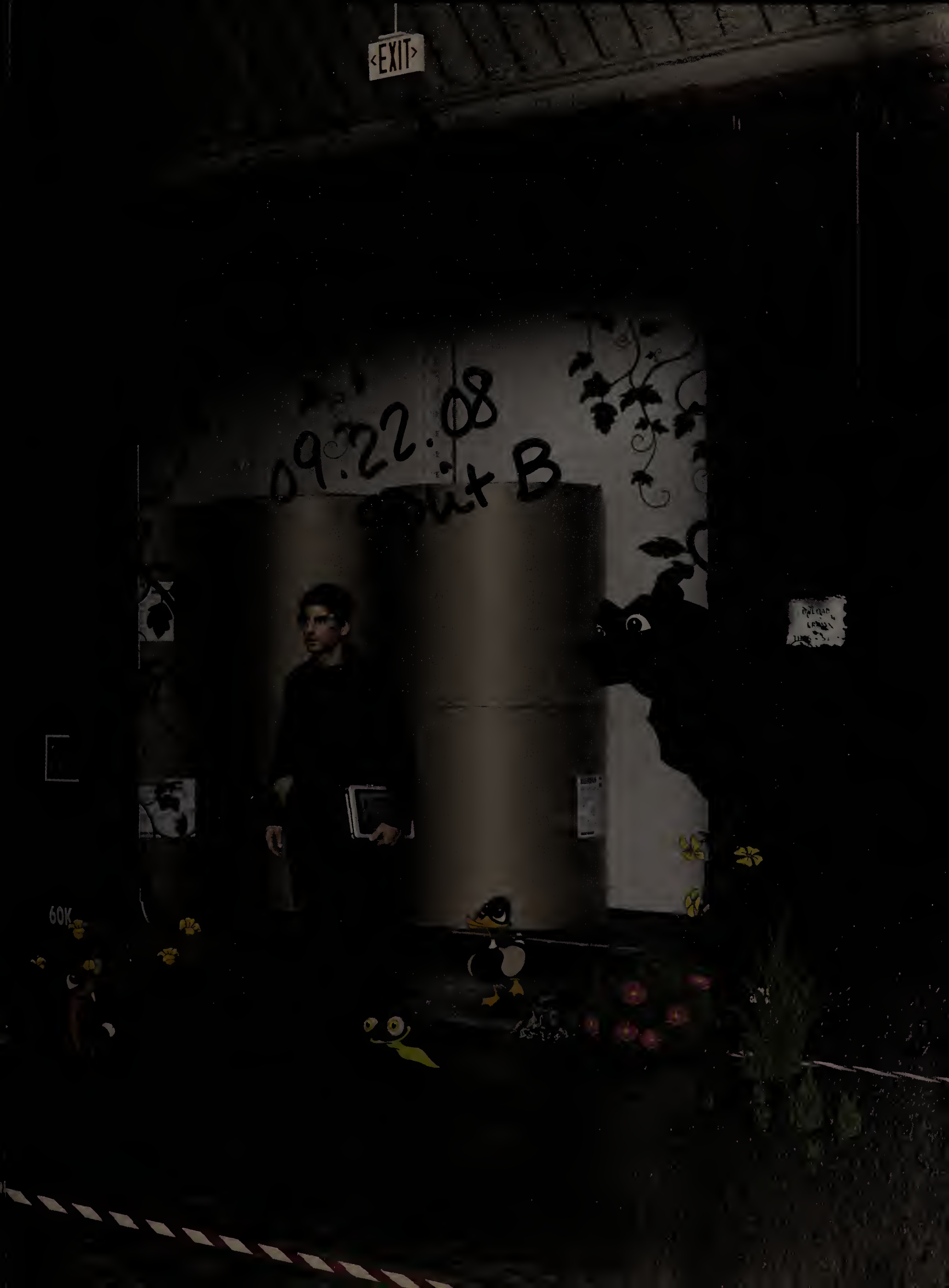
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Exhibit B
60K

Joaquin Gamboa (left) and Marc Lindsey say that old software licensing models don't work in the cloud.

CLAUDIO VASQUEZ

Cloud-enabling Your Software Licenses

Here's how to move forward while keeping your feet on the ground.

By Joaquin Gamboa and Marc Lindsey

THE PROMISE of moving your company's software and data systems into the cloud grows more enticing by the day. Virtualization, cloud computing and grid networks have a lot to offer enterprise users. But you could put your company and your job at risk if you fail to consider certain factors that are key to getting the right license at the right price.

Whether you plan to use your own grid infrastructure or someone else's cloud computing platform, your licensing structures must accommodate the applicable virtual environment. Although many factors should be considered when licensing software, we'll focus on the available framework for licensing proprietary software, with virtualization and grid computing in mind.

Unlike in a typical computing environment, virtualization, coupled with grid computing, enables the disaggregation of operating systems, middleware, data stores and application software from the limitations of physical machines and the local-area network. This new world is colliding with traditional vendor licensing practices, producing software compliance nightmares for both licensees and licensors, and often resulting in irrational license fees.

LEGACY LICENSING PRACTICE

Traditional licenses fall into one of these three categories:

»The CPU license is typical for operating system software, middleware and some application software. It enables licensees to use the software on one

Continued on page 28

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ENTERPRISES OFTEN license critical software on a perpetual basis by paying a one-time upfront fee in exchange for the right to use the licensed software indefinitely under the terms and conditions of a license agreement. In recent years, an alternative licensing approach known as software as a service has offered enterprises an attractive alternative for certain types of software.

SaaS is attractive because it entirely shifts the burden of running and maintaining an infrastructure to support a particular application. With SaaS, users only need the infrastructure to access and connect to the provider's data center.

Despite its simplicity and attractive pay-as-you-go monthly pricing, there is little evidence that SaaS will completely replace perpetually licensed software in the enterprise. Consequently, enterprises will, at least for some software, continue to work within the confines of a perpetual license construct for the foreseeable future.
– JOAQUIN GAMBOA AND MARC LINDSEY

Continued from page 26

machine and often identifies specific compatible-equipment configurations. Any equipment configuration limitation is generally based on design, not license compliance. For some software (for example, certain middleware server software), the licensed product may support alternative or enhanced server configurations, but separate license entitlements must be purchased.

Under a CPU license, the fee may vary based on the processing power of the designated CPU. The number of users who access the licensed software is irrelevant.

The biggest problem with CPU licenses in a grid or cloud context is that licensors expect licensees to buy additional licenses for each processor (by number and type) that executes the licensed software. This is true even if multiple virtual machines or processors are simply sharing the load — without increasing capacity or transaction volume — of a much smaller number of legacy physical machines or CPUs. In a cloud environment running multiple virtual machines, license fees can easily rise because various processors are running the licensed software.

»The seat license designates the number of "seats" that can use the software. The license entitlement doesn't flow to any specific users. There are two common seat license methods.

The first calculates the fee by counting the total number of people who use the software. This method correlates poorly with actual use. There may be a significant number of potential users who rarely or never actually use the software. Worse, some licenses define a chargeable seat as an instance of a user accessing the software from a particular machine (virtual or otherwise). Consequently, a single user or device can give rise to multiple seats — causing the licensee to pay multiple times for use by one individual or device.

The second method determines the license fee by calculating the total number of concurrent users permitted to access the software at one time. This more closely corresponds to licensee use patterns than the total-seat license because occasional users can be discounted when determining how many seats to purchase.

Of these two, the concurrent-user seat license may be the most desirable if you're moving to grid computing and a virtualized infrastructure. Under concurrent-user models, licensees should be charged based upon the greatest number of seats (whether individuals or devices) that use the application at any one time. Whether the users operate one or more physical or virtual machines shouldn't matter.

This can be an imperfect indicator of usage patterns, however, because not all users are equal. A company that has many power users would pay the same fee as a company with an equal number of users whose usage is average. And from the licensor's perspective, the concurrent-user model is undesirable for back-office or middleware software, since a few administrative users can serve as transaction conduits.

»The enterprise or site license allows the licensee to use the software without geographic limitations, specific limits on the number of users or devices accessing the software, arbitrary processor accounting rules, or prohibitions on the number of copies made or used by the licensee. There may be restrictions on the types or configuration of the equipment on which the software may be installed, as well as some business operation boundaries.

The site license is a variant that restricts to a specific site either the installation or the location from which users can access the software. Each additional site requires a new license.

Large companies regularly negotiate long-term custom enterprise and site licenses. These require lengthy negotiations and large lump-sum payments to the licensor. Given the cost and negotiation leverage necessary to make this strategy work, enterprise and site licenses are often impractical.

THE PATH FORWARD: THE TRANSACTIONS LICENSE

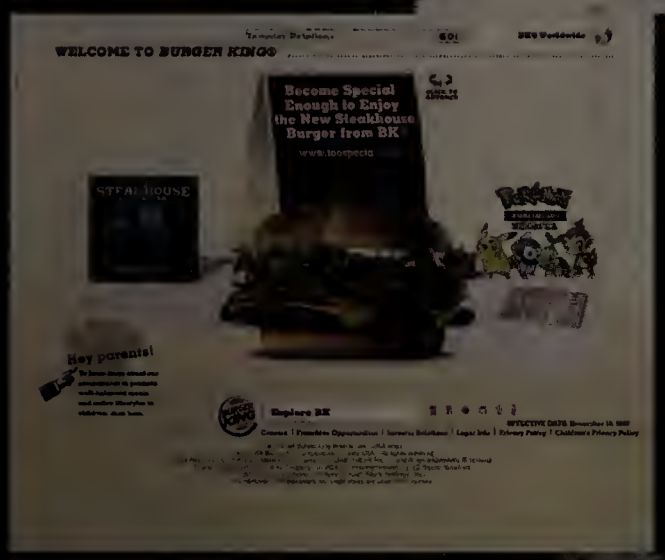
There's another, better licensing structure that fairly balances the interests of licensors and licensees: a transactions license. This embraces some of the elements of an enterprise license, but it is adapted to serve organizations of all sizes.

Applying a transactions license, the licensee can use the software without geographic limitations, restrictions on the number of users or devices accessing the software, or arbitrary processor accounting rules. There are no limits on the number of copies or instances.

The license fee and entitlements are based on the licensee's transaction volume. As long as the actual transaction volume is within a preset range, there is no need to purchase additional license entitlements or receive underutilization credits. The transaction limits can be tailored as narrowly or as broadly as the licensees and licensors agree.

To keep track of transaction volumes, the licensed software can be enabled with software agents that monitor and report on the transaction

Continued on page 30



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Standards, Security And Data Handling in A Cloud Environment

Here are some other important issues to consider when selecting a cloud vendor or services provider:

STANDARDS

Whether you're running your own cloud or depending on someone else's, you'll want to ensure that your early investments in virtualization are good for the long haul. To the extent possible, get assurances from your vendors and cloud providers that the systems you're buying are standards-based, will operate with other systems you intend to adopt as part of your technology strategy, and are able to grow with your business - both in terms of capacity and complexity.

If you're using someone else's cloud, make sure that you're not creating an extensive set of APIs or function calls that are proprietary to that cloud provider. The greater your investment in your virtualized environment, the more you will be locked into that specific cloud provider.

SECURITY

Security vulnerabilities may occur in a virtualized environment for various reasons (e.g., design defects, poor patch/update management, ineffectual authentication controls, storage and transmission of sensitive data without encryption, and inadequate procedures for security incident monitoring, reporting and mitigation). To increase the likelihood that your virtualized environment will be sufficiently secure, make security one of the determining factors in the evaluation and selection of both software and services vendors.

In your evaluation of software vendors, consider the following factors:

- The relative importance that the vendor has placed on security in its design of the software.
- The processes the vendor has in place, and the commitment it's willing to make, to update the software's security throughout the term of the license.
- The compatibility of the software's security design and mechanisms with the other components of your virtual environment.

In your evaluation of a cloud manager or provider, consider the vendor's physical and logical security practices, processes and management approaches, and its willingness to comply with your security policies and procedures. Your negotiated agreement with a cloud manager or provider should do the following:

- Enable you to conduct periodic security assessments.
- Assign responsibility for security incident detection, reporting, response and mitigation.
- Include a process for management escalation of unresolved security problems.

DATA HANDLING

Protecting sensitive corporate and customer data should be a priority if you're considering a virtualized environment that enables a vendor to manage or store that data. Before you put your data in the hands of a vendor, demand that the vendor demonstrate its data protection and business continuity capabilities. And when you decide to move forward, make sure that your negotiated agreement is explicit about the vendor's ongoing obligations to protect your data and holds the vendor liable for failure to satisfy those obligations.

If your company operates internationally or in certain industries in the U.S. (e.g., financial services or health care), your negotiated agreement should require the vendor to comply with applicable data-protection and privacy laws.

The negotiated agreement should also do the following:

- Incorporate the relevant portions of your privacy policies and obligate the vendor to conform to them.
- State that your company owns its data, has access to that data at its discretion, and will receive the data upon the expiration or termination of the agreement.
- Describe the parties' responsibilities when it comes to recovering lost data.

– JOAQUIN GAMBOA AND MARC LINDSEY

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volume during the appropriate measurement period. (Annually makes the most sense. It accounts for seasonality and avoids introducing too many burdensome electronic audits.)

Determining which transactions for a given piece of software will be relied on for pricing and then developing reliable monitoring agents are among the technical challenges transactions licenses present. Forward-thinking licensors should be motivated to overcome these challenges, however, because the rewards are worth the effort.

Licensors will be able to offer many of their potential customers a more rational pricing option that doesn't force them to purchase more license entitlement rights than they actually use initially and allows them to purchase more as needed. Because licensees won't feel cheated by the licensor, more will resist the temptation to abuse their license rights. Licensors that evolve their software designs and license practice to keep pace with the virtualization and grid computing technologies will have a competitive advantage.

The promises of virtualization and cloud computing are tempting. But when moving forward with virtualization, make sure your head is not lost in the clouds. You should be clear about what you're getting yourself into. Identify the real costs, pin down the scope of your use rights, put protections in place in case things don't go as planned, and lay a strong licensing foundation that will serve you in the future. ■

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The Power Of One

Creating a single billing system from 13 saves Verizon Wireless $20 million annually. By Julia King

PREMIER 100 IT LEADERS 2008

BEST IN CLASS

This story is part of an ongoing series showcasing the best projects of this year's Premier 100 IT Leaders.

Verizon Wireless

IT CHAMPION: Ajay Waghray, CIO
IT STAFFERS: 2,394
PROJECT PAYBACK: $20 million annually

"LESS IS MORE" is the IT philosophy in operation at Verizon Wireless. In fact, the telecommunications company's 2008 Premier 100 Best in Class project was a study in the benefits of slimming down. By consolidating 13 billing systems into a single enterprise system, the company is now saving $20 million annually.

But according to Ajay Waghray, a 2008 *Computerworld* Premier 100 IT Leader honoree and CIO at the $44 billion Basking Ridge, N.J., company, neither data nor systems integration proved to be the biggest challenge in the project. Instead, it was innovating and optimizing the hundreds of business processes that the various systems automated.

"Billing systems are the keepers of all the customer data and rules of engagement. To simplify the customer experience, you've got to simplify what you're servicing," Waghray says.

The first step was assembling a cross-functional team whose members represented every step in a customer's experience, from marketing and sales to network operations, store operations and support. The deadline was tight: 18 months to standardize and implement a single set of business processes that would ultimately make it possible to ensure that every customer who walked into one of the company's 2,400 stores would walk out with an activated, ready-to-use wireless phone.

Next came the long, hard work of deciding which processes should be retained to best serve the company's 69 million subscribers.

"We had multiple variations of multiple practices and policies. We had different systems, which spawned different approaches to business problems," recalls John Bianchi, director of customer service and a member of the original cross-functional team. "What we did is roll up our sleeves and plow through all of these customer interactions. We looked for the simplest and most efficient processes and then asked IT to automate those processes."

"The whole thinking was that less is more," Waghray emphasizes. "That means fewer applications to manage, fewer rules of engagement, fewer touch points for customers."

PULLING IN THE DATA

Once the processes were decided, data elements from the old billing systems needed to be imported into the new system. This meant that each and every data element in a customer's file had to be mapped into the new enterprise system in a standardized way. To do that, Waghray says, the IT team adopted a standard format for importing data from the 13 different systems into the new in-house billing system, which runs on a combination of distributed and mainframe platforms.

Today, this single billing system is the primary repository for all customer, pricing and service package data — a setup that works to create consistency across all of the company's service areas.

"For example, we have both business and consumer customers that have a need for accounts in multiple geographies. Before, they had separate accounts," Bianchi explains. "Now, if a customer in California wants to add a parent in Florida to his account, we can do that very simply and straightforwardly. It's the same with a business that may need to change accounts for people as they are moved around the country. We're hitting the sweet spot of what customers are asking for, which is for us to be simple to do business with."

Verizon Wireless is more than likely saving its customers time and money as well, according to Gartner Inc. analyst Phillip Redman.

Every carrier that goes through mergers and acquisitions gets stuck with several types of billing systems spread across the country, Redman says. This leaves bills in multiple formats and creates room for error. Indeed, Gartner estimates that approximately 10% of carriers' bills have errors, many caused by inconsistent systems. This is difficult to monitor, so corporate customers waste a lot of time and money finding and reporting errors.

According to Redman, "Eliminating the chance for errors by consolidating billing systems improves accuracy, creates higher customer satisfaction and actually reduces costs both for the enterprise and the carrier, which has fewer systems to maintain." ■

"The whole thinking was that less is more. That means fewer applications to manage, fewer rules of engagement, fewer touch points for customers.

AJAY WAGHRAY, CIO, VERIZON WIRELESS

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How To Save Your Job

Your intuitive response to a layoff threat may be exactly wrong.

» Janet Banks suggests raising your profile when layoffs seem imminent.

The smell of fear is getting stronger as the "R" word pops up more frequently in business discussions and layoffs loom in many companies. In this month's Harvard Business Review, **Janet Banks** *and Diane Coutu assert that workers who feel that their jobs are threatened often react in exactly the wrong way. Banks, a former executive at FleetBoston Financial and Chase Manhattan Bank who is currently doing small group facilitation work for nonprofit companies, told Kathleen Melymuka that your best strategy may not be the one that's intuitive.*

If I'm an IT professional, what's the single most important thing I can do to keep my job when layoffs seem to be looming at my company? I'd love to say it's your work on relevant projects, but attitude is probably the single biggest thing you can control, and it will impact how you perceive yourself and how others perceive you. It's much easier to deselect a sour, negative person than someone who is constructive and creative.

I don't want to pigeonhole people, but tech work often attracts introverted people. And most business people are extroverts, so they are not going to know how an introvert is thinking. So you need to take risks and put yourself out [there] more — offering constructive ideas.

Many people hunker down and keep a low profile when layoffs threaten. Your advice seems to be to do just the opposite. Hunkering down is an illusion. You have the payroll sheet with everybody's name on it. Nobody is invisible, and you can't hide. Everything is being assessed: every project, every person. And if you're not visible in a positive way, it's easy to say, "I won't miss him."

You write that it's also valuable to be ambidextrous. What does that mean for an IT professional? The ability to play multiple roles. For me, the most important would be a capacity to identify with the business as opposed to just the tech role. In companies I've worked with, there have been terrific examples of people in IT who really became business leaders. Art Ryan at Chase came from that world and became CEO. But he was always identified with how to make the business more profitable. That's a [mind-set].

You stress the importance of showing empathy for your leaders, even if they may be planning to cut your job. How does that differ from sucking up? The people who do it well do it from an honest effort to be supportive to their boss, and it starts with having a relationship that is built on trust so you can give honest feedback. You can't manufacture that in a crisis; it's something you need to be working on whether you're worried about your job or not.

Plan B

No job protection plan is foolproof. As you do what you can to keep your job, it's wise to also prepare for the worst. Here are some things you can do now:

- **Determine what you're good at and what you enjoy most.**
- **Revisit Myers-Briggs or other tests you've taken over the years to gain a better understanding of your strengths and weaknesses.**
- **Read self-help books for inspiration.**
- **Update your résumé.**
- **Network.**
- **Consider a creative leap to a different kind of job.**

– Adapted from *Harvard Business Review*

Kissing up is when people hear you talking out of two sides of your mouth. You say one thing to the boss and another around the water cooler. You can't do that. Phony behavior is spotted a mile away, so the empathy has to come from your authentic self.

What makes you think this approach to helping people save their jobs will work? There's no guarantee that any approach will work. Sometimes it's not personal at all: If a project is gone, you're gone. Sometimes there's nothing you can do about it. But at end of the day, how do you want to feel about yourself? Did you give it your best? ■

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Building a Security Org From Scratch

Coming in as the **security guru** in a company with no infosec program at all is **an opportunity.** Doing it **twice** is even better.

I HAVE THE rare good fortune of being in a position to help build an information security organization from scratch. I'm especially lucky because I've done it before.

At my previous job, I spent six years building an information security program where none had existed. How many of us get to do that?

It may sound daunting, but let me tell you, it was immensely rewarding. I was able to start with a clean slate, building a mature security environment without the distraction of dealing with any existing processes or infrastructure.

This time around, I have experience to lean on. For example, I learned in my old job that one of the biggest challenges to success is negativity, so I'm trying to head off resistance and negative attitudes while racking up some significant, visible wins early on. Security efforts can't bear fruit without the cooperation of a large number of people from organizations all across the enterprise, each of which has its own priorities far removed from what I want to accomplish.

Dealing with software vulnerabilities is my first big challenge in this company. Determining which systems need patching and then following up with the patches themselves isn't very difficult, of course. The challenge arises because I don't have the authority to command that this be done. Instead, I need to convince various departments' technical specialists and business owners how important it is to patch the systems they rely on, and make it clear why they should spend a significant amount of time and money to make this happen. I'm sure you've seen this before — the security guru who is responsible for fixing a problem but lacks the authority to go out and patch.

■ I'm sure you've seen this before – the security guru who is responsible for fixing a problem but lacks the authority to go out and patch.

So this week, I took the security show on the road. I've elected to put myself out in front of the people who need to support and fund this effort and help them understand what needs to be done and why.

Taking a top-down approach, I spent this week meeting with six senior managers of various business units. These are the people who should be demanding that their systems be patched regularly, so I'm raising their awareness of the need for vulnerability management, showing them reports on the security health of their systems and helping them understand the risks associated with unpatched systems.

PATCH CATCH-UP

We have a lot of catching up to do because most of our critical systems (yes, even the Internet-facing ones) haven't been patched at all in years. So right now, although I'm focused on catching up, it's going to be just as important to implement a regular patching cycle so that we never fall behind again.

I've had great results so far with my education-and-advocacy tour. I'm trying to keep my message positive, stressing the benefits, improvements and returns to be gained with regular patching, while avoiding the use of FUD to scare people into submission. Even though I could tell them plenty of stories about how our systems are being constantly attacked, I've seen no need to take that route. In fact, people have been suggesting that we patch everything as soon as we can, applications included, but my focus right now is on patching the basic operating systems and not the applications that run on them.

I'm wary of turning up the throttle too quickly and biting off more than our company can chew right now. One battle at a time, please. I know from experience that we have a long road to travel, and I'm settling in for the long haul. ■

This week's journal is written by a real security manager, ***"J.F. Rice,"*** *whose name and employer have been disguised for obvious reasons. Contact him at jf.rice@engineer.com.*

Trouble Ticket

AT ISSUE: Most of this company's critical systems haven't been patched in years.

ACTION PLAN: Get cooperation from various departments by educating and informing, not threatening.

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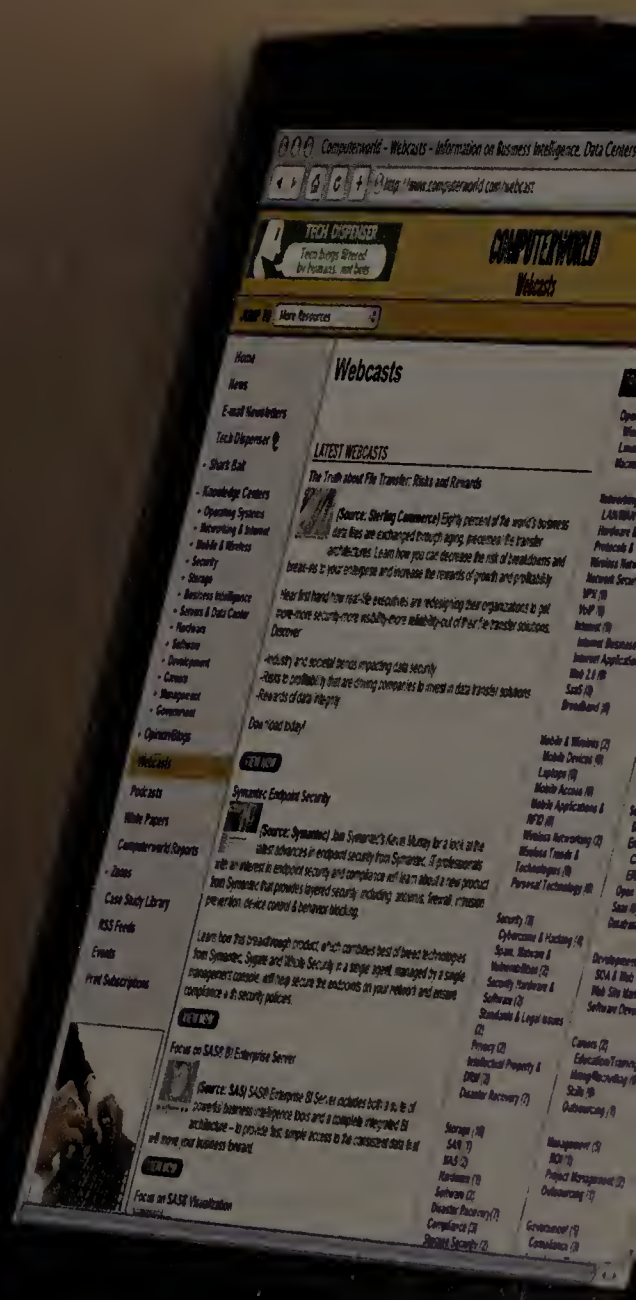

■ OPINION

Paul Glen

What Is a Job, Anyway?

WITH THE economy ailing, the U.S. presidential election in full swing and surveys showing cuts in next year's IT budgets, get ready to hear more and more about jobs. People will lose jobs. Evil corporations will export jobs. We will need more jobs. We will need better jobs. Not McJobs.

People will become unemployed and underemployed, and they will drop out of the workforce. They will go back to school with the hopes of obtaining better jobs. The government will try to "create" jobs using tax policy, environmental policy, fiscal policy, trade policy, labor policy, research funding, public works and a healthy dose of prayer.

The discussion will be endless. But it will skip one important question: What is a job, anyway?

The word has become a central part of the lexicon of personal finance and career development. For most of us, it's the primary source of family income. But do we really know what it means?

I'm not an expert on employment history, but it seems to me that 50 years ago, the meaning of a job was relatively clear.

If you were a man, you joined a company for an indefinite period, usually assumed to be life. You worked full time and drew a steady salary, and the firm repaid your loyalty. When you retired, you got a pension and maybe even health benefits.

If you were a woman, the meaning of a job was probably more flexible. It may have been a career or perhaps just something to do until you started a family.

But now, who knows what a job means? If you worked for a company for five years and it decided to outsource your department, did you have a job, or was it just a contract?

If you're an independent contractor with an open-ended engagement with a full-time client, do you have a job?

■ It seems that we in IT – for better and worse – have been in the vanguard of the creative reinvention of employment.

If you're an employee of a staffing firm that will lay you off as soon as your project ends, do you have a job?

If you're a full-time employee of a company and you change from being a programmer to being a project manager, have you changed jobs?

The questions are endless. It seems that we in IT — for better and worse — have been in the vanguard of the creative reinvention of employment. Consultants and contractors have become commonplace. What was once clear has become a jumble.

Does this matter?

I think that it does. Morale and motivation are tied in many ways to whether our employment relationships fulfill our expectations. Employers and employees come to these relationships with subtle and often unarticulated expectations that, if not met, become a source of conflict, unhappiness and unease.

While the idea of the 1950s stable job lives on and the word *job* continues to imply stability and security, that sort of employment relationship has become an endangered species. The reality is much more complex than a three-letter word can encompass. That seems to leave us all on edge, always dissatisfied with the employment we have, pining for the fantasy that reality can never achieve.

So the important question today is not whether you have a job, but whether you have an employment relationship that meets your needs and aspirations.

As managers, it's past time for us to become more observant about what our people want and need from us and more articulate about what we can realistically offer.

If you want to keep the general malaise at bay and keep your people focused and motivated, your job includes helping them thrive in this new and as yet unnamed world. ■

Paul Glen *is the founder of the GeekLeaders.com Web community and author of the award-winning book* Leading Geeks: How to Manage and Lead People Who Deliver Technology *(Jossey-Bass, 2003). Contact him at info@paulglen.com.*

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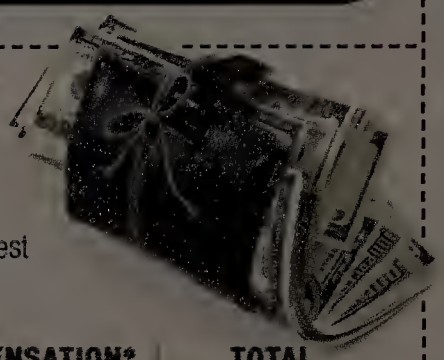
Career Watch

84% **Percentage of large companies that don't support single-payer universal health care. In a survey conducted this spring by Watson Wyatt Worldwide Inc. and the National Business Group on Health, 380 of 453 respondents, who were representatives of large corporations, said they instead want to provide workers with company-sponsored health care programs.**

They Definitely Aren't Hurting



Some of the Fortune 1,000 CIOs with highest levels of total compensation in 2007:

		SALARY	OTHER COMPENSATION*	TOTAL
1	**Barbara Desoer,** Bank of America	$800,000	$9,732,513	$10,532,513
2	**Glen Salow,** Ameriprise Financial	$709,678	$6,319,510	$7,029,188
3	**Robert Carter,** FedEx	$510,000	$4,951,269	$5,461,269
4	**Tim Shack,** PNC Financial	$475,000	$4,421,181	$4,896,181
5	**Mark Boxer,** WellPoint (now retired)	$693,654	$4,184,354	$4,878,008
6	**Bob Willett,** Best Buy	$685,577	$3,992,158	$4,677,735
7	**Dave Kepler,** Dow Chemical	$562,310	$4,110,517	$4,672,827
8	**Randy Darcy,** General Mills	$500,000	$3,949,958	$4,449,958
9	**Bob DeRodes,** Home Depot	$774,788	$3,521,355	$4,296,143
10	**Larry Kittelberger,** Honeywell International	$606,250	$3,469,398	$4,075,648

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■ **ASK A PREMIER 100 LEADER**

Bruce Marcus

The CIO at **The McGraw-Hill Cos.** answers questions about becoming a leader, the economic outlook and working things out with a difficult boss.

How can someone who's interested in more of a leadership role stand out from his peers? The broader perspective is always a good place to start. Technologists tend to have deep knowledge and siloed perspectives. Understand the business objectives, and look at how the technologies you're responsible for are and can be used to further those objectives. This understanding provides a starting point for discussion that tends to differentiate would-be leaders. Looking beyond your technical silo to how all your technologist peers can help achieve those business goals is part of what makes a leader. Showing the way out of endless abstract debates about what's the best technical approach toward a solution that's good enough for the business purpose helps as well. Your customers will likely appreciate the perspective, and your leadership may well recognize your ability to communicate in ways that tie technology goals to business and customer impact.

I was just starting to regain some confidence in the IT industry when the economy started to go south a few months ago. Is IT going to get hit hard by this downturn? Yes, but it's not likely to be as big a hit as in the previous downturn. IT organizations are generally now more efficient and focused on higher-value skills than previously. And more and more technology is focused on the revenue-generating side of the business than ever before. Businesses seem to be moving cautiously toward adjusting IT staffing in this downturn.

I've had some run-ins with my boss, who becomes very defensive if anyone suggests other ways of doing things. His attitude seems petty to me, but I'm the one who gets labeled "negative" all the time. What should I do? I'd take a good look at how you're raising suggestions. With some bosses, being challenged in a room full of other people is usually guaranteed to go nowhere and earn you a negative label. A one-on-one session may help your boss put aside her or his ego and listen. Sometimes, a short written suggestion – sent only to your boss (same ego issue) may help open the door. Sometimes, when there are competing notions about how to move forward, abstract discussion isn't helpful, and only real-world experience can get to a conclusion. Even when the winning idea isn't yours, be as energetic about realizing it as you'd be if it were your own. That lends credibility – "It wasn't Tom's idea, but he worked the hardest to make it happen" – which is critical to getting suggestions taken seriously.

QUESTION?
If you have a question for one of our Premier 100 IT Leaders, send it to **askaleader@computerworld.com,** and watch for this column each month.

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Shark Tank

TRUE TALES OF IT LIFE AS TOLD TO SHARKY

It Would've Helped

This pilot fish writes custom software for his company and supports its users at remote sites. So when a user contacts him to say the software has suddenly stopped working, fish is right on it. "Fortunately, the user enclosed a screenshot, though the information from the screenshot was useless," says fish. "I asked the user to attach the log file that my application generates if problems occur." But the log file reveals nothing, and fish begins to get concerned. He asks the user to write down what he did, step by step, just before the error occurred. User does, and fish runs through the steps on his end without any problems. Then fish's boss gets involved and tells fish to start checking with users at other sites. Several hours into *that* process, fish calls the user again to get more information on the problem and have him try one specific work-around. "Oh," says user, once fish gets him on the phone, "the tech guys just took it away. All of my other programs had stopped working and the PC crashed right after my last e-mail to you. They think I may have had a virus. Should I have called?"

Just Following Orders

Phone company tech shows up at this business to install two new high-availability routers, replacing a single older model. "The plan was to leave the old router in place as backup, to be removed after 60 days," says a pilot fish in the know. "The office and all 300 users were soon up on the new routers." Flash forward 60 days: The very same tech shows up, walks past all 300 users and proceeds to the switch room to decommission the old router. "However, the offshore group responsible for creating the decom order made a mistake, and the tech proceeded to decom the two new routers," fish says. "Later that evening, when the configurations and circuit connections were reapplied and the routers were back up, tech was informed that he's banned from that customer site for life."

Who Knew?

Pilot fish works the late shift, so he's not due at the office until 10 a.m. But at 8:45 a.m., he gets a call from a colleague: The server is dead, the root disk is corrupt, and he's going to have to arrange a replacement disk and recovery. OK, fish figures, he's got it covered; no need to come in early. "When I arrived on-site, I went to the computer and rebooted it. It started clean immediately, and we got everything up and running with no errors," says fish. "My colleague then had to send out e-mails saying, 'Whoops, the server is now up, and cancel the engineer.' "

■ *Sharky's up and running and waiting for your true tale of IT life. Send it to me at sharky@computerworld.com. I'll send you a stylish Shark shirt if I use it.*

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■ FRANKLY SPEAKING

Frank Hayes

Under the Chrome

GOOGLE CHROME? Hold that thought.

First, let's say your organization has confidential data — Social Security numbers, credit card transactions, customer sales information, anything like that. Would you rather keep it in your data center or have it sitting on a user's laptop?

That's easy: You *want* it safe in the data center. But that makes the data much less convenient to an employee who might have used it to analyze a trend, identify fraud or close a sale. It's a trade-off; to put that data to its best use, you might have to give up some control and entrust that user with the data.

Now what about this: Say you're going to hand over a critical chunk of your IT infrastructure to an outsider. Where do you draw the line? At turning over all IT operations to an outsourcer? At letting Salesforce.com own your sales force automation? At bringing in a consultant to run your online retail operation? At third-party Web hosting? At leased T1 network lines?

Chances are your comfort zone ends somewhere in the neighborhood of Salesforce. Software as a service still makes many IT people a little queasy. Will the advantages be worth having an outsider so involved in everything that your sales users do? Maybe — but that requires a lot of trust, and it's not a decision that anyone in IT should make lightly.

Which brings us back to Chrome, the Web browser that Google released in beta form last week (see story, page 9).

Much ink and many electrons have been spilled over the fact that Chrome is fast and simple and designed to run Web applications well (especially Google's Web applications), that it won't let one bad Web site crash the whole browser, that it grabbed a 1% share of Web browsing in less than a day.

And, of course, that it's Google's "Windows killer" (and good luck with that one, kids).

■ Google doesn't see Chrome as just another browser. It's more like the front end for a Web-browsing software-as-a-service offering.

But it's really just a Web browser, right? No. At least, not the way we've thought about Web browsers before.

Most browsers send HTTP messages to far-off Web servers, which respond with HTML pages. Chrome spends nearly as much time phoning home to Google as it does talking to other Web servers.

Type in a Web address that doesn't exist and Chrome will send it to Google for help finding the right address.

Type in an address that Google has flagged as a phishing or malware site and Chrome will send an obfuscated version of the address to Google to get more information about the risk.

Type anything at all into the address bar and Chrome will send the keystrokes to Google for help suggesting what you may be looking for.

And that doesn't include the usage statistics and other information that Chrome sends home for Google to use "in order to operate and improve Google Chrome and other Google services," according to Google's privacy notice for Chrome.

You can turn much of that phoning-home off, or at least reduce it. But it's clear that Google doesn't see Chrome as just another browser. It's more like the front end for a Web-browsing software-as-a-service offering.

Feeling queasy?

Relax. Right now, Chrome is a beta with significant security problems yet to be addressed. By definition, it's not ready — that's what *beta* means.

Bugs and security holes will be fixed. But Chrome's basic business model won't change.

So when you start evaluating it — and you should — don't just test how well it serves up Web applications, how robust it is or whether it really is a better browser.

Think about this: Are you ready to trust a software-as-a-service model for just about everything your users do?

Because that's Google Chrome. ■

Frank Hayes *is* Computerworld*'s senior news columnist. Contact him at frank_hayes@computerworld.com.*

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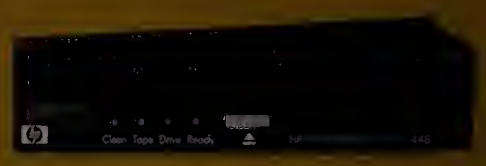

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